ANALYTICAL REPORT

Lab Number:	L1710820
Client:	EST Associates, Inc. 51 Fremont Street Needham, MA 02494
ATTN:	John D'Andrea
Phone:	(781) 455-0003
Project Name:	KEOLIS-CRMF-MTHLY EPA SAMP D3
Project Number:	KEOLIS-CRMF
Report Date:	04/14/17

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: KEOLIS-CRMF-MTHLY EPA SAMP D3
Project Number: KEOLIS-CRMF

Lab Number: L1710820
Report Date: 04/14/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1710820-01	DMH 13.4 (DOWNSTREAM MH) COMPOSITE	WATER	70 R THIRD AVENUE, SOMERVILLE, MA 02143	04/07/17 08:00	04/07/17
L1710820-02	DMH 13.4 (DOWNSTREAM MH) RECEIVING WATER	WATER	70 R THIRD AVENUE, SOMERVILLE, MA 02143	04/07/17 09:20	04/07/17
L1710820-03	AMBIENT (MILLERS RIVER BEYOND BOOMS) COMPOSITE	WATER	70 R THIRD AVENUE, SOMERVILLE, MA 02143	04/07/17 08:00	04/07/17
L1710820-04	AMBIENT (MILLERS RIVER BEYOND BOOMS) REC. WATER	WATER	70 R THIRD AVENUE, SOMERVILLE, MA 02143	04/07/17 10:10	04/07/17

Project Name:	KEOLIS-CRMF-MTHLY EPA SAMP D3	**Lab Number:**	L1710820
Project Number:	KEOLIS-CRMF	**Report Date:**	04/14/17

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	KEOLIS-CRMF-MTHLY EPA SAMP D3	**Lab Number:**	L1710820
Project Number:	KEOLIS-CRMF	**Report Date:**	04/14/17

Case Narrative (continued)

Report Submission

This report contains the results of the Total Hardness, Alkalinity, Specific Conductance and Ammonia analyses.

The results of all other analyses will be issued under separate cover.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Amita Naik

Title: Technical Director/Representative Date: 04/14/17

METALS

Project Name:	KEOLIS-CRMF-MTHLY EPA SAMP D3	**Lab Number:**	L1710820
Project Number:	KEOLIS-CRMF	**Report Date:**	04/14/17

SAMPLE RESULTS

Lab ID:	L1710820-01	Date Collected:	04/07/17 08:00
Client ID:	DMH 13.4 (DOWNSTREAM MH) COMPO	Date Received:	04/07/17
Sample Location:	70 R THIRD AVENUE, SOMERVILLE,	Field Prep:	Not Specified
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	44.6		mg/l	0.660	NA	1	04/12/17 11:50	04/14/17 00:59	EPA 3005A	19,200.7	MC

Project Name:	KEOLIS-CRMF-MTHLY EPA SAMP D3	**Lab Number:**	L1710820
Project Number:	KEOLIS-CRMF	**Report Date:**	04/14/17

SAMPLE RESULTS

Lab ID:	L1710820-02	Date Collected:	04/07/17 09:20
Client ID:	DMH 13.4 (DOWNSTREAM MH) RECEI	Date Received:	04/07/17
Sample Location:	70 R THIRD AVENUE, SOMERVILLE,	Field Prep:	Not Specified
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	39.4		mg/l	0.660	NA	1	04/12/17 11:50	04/14/17 01:03	EPA 3005A	19,200.7	MC

Project Name:	KEOLIS-CRMF-MTHLY EPA SAMP D3	**Lab Number:**	L1710820
Project Number:	KEOLIS-CRMF	**Report Date:**	04/14/17

SAMPLE RESULTS

Lab ID:	L1710820-03	Date Collected:	04/07/17 08:00
Client ID:	AMBIENT (MILLERS RIVER BEYOND	Date Received:	04/07/17
Sample Location:	70 R THIRD AVENUE, SOMERVILLE,	Field Prep:	Not Specified
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	128		mg/l	0.660	NA	1	04/12/17 11:50	04/14/17 01:54	EPA 3005A	19,200.7	MC

Project Name: KEOLIS-CRMF-MTHLY EPA SAMP D3 **Lab Number:** L1710820

Project Number: KEOLIS-CRMF **Report Date:** 04/14/17

SAMPLE RESULTS

Lab ID: L1710820-04 Date Collected: 04/07/17 10:10

Client ID: AMBIENT (MILLERS RIVER BEYOND Date Received: 04/07/17

Sample Location: 70 R THIRD AVENUE, SOMERVILLE, Field Prep: Not Specified

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	96.7		mg/l	0.660	NA	1	04/12/17 11:50	04/14/17 01:58	EPA 3005A	19,200.7	MC

Project Name: KEOLIS-CRMF-MTHLY EPA SAMP D3 **Lab Number:** L1710820

Project Number: KEOLIS-CRMF **Report Date:** 04/14/17

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01-04 Batch: WG993471-1										
Hardness	ND		mg/l	0.660	NA	1	04/12/17 11:50	04/13/17 23:46	19,200.7	MC

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: KEOLIS-CRMF-MTHLY EPA SAMP D3

Project Number: KEOLIS-CRMF

Lab Number: L1710820

Report Date: 04/14/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-04 Batch: WG993471-2								
Hardness	108		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: KEOLIS-CRMF-MTHLY EPA SAMP D3
Project Number: KEOLIS-CRMF

Lab Number: L1710820
Report Date: 04/14/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG993471-3 QC Sample: L1710840-01 Client ID: MS Sample												
Hardness	920	331	1280	109		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG993471-7 QC Sample: L1711081-02 Client ID: MS Sample												
Hardness	326	66.2	375	**74**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: KEOLIS-CRMF-MTHLY EPA SAMP D3
Project Number: KEOLIS-CRMF

Lab Number: L1710820
Report Date: 04/14/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG993471-8 QC Sample: L1711081-02 Client ID: DUP Sample						
Hardness	326	320	mg/l	2		20

INORGANICS
&
MISCELLANEOUS

Project Name: KEOLIS-CRMF-MTHLY EPA SAMP D3
Project Number: KEOLIS-CRMF

Lab Number: L1710820
Report Date: 04/14/17

SAMPLE RESULTS

Lab ID: L1710820-01
Client ID: DMH 13.4 (DOWNSTREAM MH) COMPO
Sample Location: 70 R THIRD AVENUE, SOMERVILLE,
Matrix: Water

Date Collected: 04/07/17 08:00
Date Received: 04/07/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	33.2		mg CaCO3/L	2.00	NA	1	-	04/12/17 09:53	121,2320B	BR
Specific Conductance	490		umhos/cm	10	--	1	-	04/07/17 17:00	4,120.1	AS
Nitrogen, Ammonia	0.150		mg/l	0.075	--	1	04/12/17 16:32	04/12/17 21:55	121,4500NH3-BH	AT

Project Name: KEOLIS-CRMF-MTHLY EPA SAMP D3
Project Number: KEOLIS-CRMF
Lab Number: L1710820
Report Date: 04/14/17

SAMPLE RESULTS

Lab ID: L1710820-02
Client ID: DMH 13.4 (DOWNSTREAM MH) RECEI
Sample Location: 70 R THIRD AVENUE, SOMERVILLE,
Matrix: Water

Date Collected: 04/07/17 09:20
Date Received: 04/07/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	29.0		mg CaCO3/L	2.00	NA	1	-	04/12/17 09:53	121,2320B	BR
Specific Conductance	520		umhos/cm	10	--	1	-	04/07/17 17:00	4,120.1	AS
Nitrogen, Ammonia	0.167		mg/l	0.075	--	1	04/12/17 16:32	04/12/17 21:58	121,4500NH3-BH	AT

Project Name: KEOLIS-CRMF-MTHLY EPA SAMP D3
Project Number: KEOLIS-CRMF
Lab Number: L1710820
Report Date: 04/14/17

SAMPLE RESULTS

Lab ID: L1710820-03
Client ID: AMBIENT (MILLERS RIVER BEYOND
Sample Location: 70 R THIRD AVENUE, SOMERVILLE,
Matrix: Water

Date Collected: 04/07/17 08:00
Date Received: 04/07/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	68.3		mg CaCO3/L	2.00	NA	1	-	04/12/17 09:53	121,2320B	BR
Specific Conductance	2400		umhos/cm	10	--	1	-	04/07/17 17:00	4,120.1	AS
Nitrogen, Ammonia	0.400		mg/l	0.075	--	1	04/12/17 16:32	04/12/17 21:59	121,4500NH3-BH	AT

Project Name: KEOLIS-CRMF-MTHLY EPA SAMP D3
Project Number: KEOLIS-CRMF

Lab Number: L1710820
Report Date: 04/14/17

SAMPLE RESULTS

Lab ID: L1710820-04
Client ID: AMBIENT (MILLERS RIVER BEYOND
Sample Location: 70 R THIRD AVENUE, SOMERVILLE,
Matrix: Water

Date Collected: 04/07/17 10:10
Date Received: 04/07/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	56.5		mg CaCO3/L	2.00	NA	1	-	04/12/17 09:53	121,2320B	BR
Specific Conductance	1900		umhos/cm	10	--	1	-	04/07/17 17:00	4,120.1	AS
Nitrogen, Ammonia	0.349		mg/l	0.075	--	1	04/12/17 16:32	04/12/17 22:02	121,4500NH3-BH	AT

Project Name: KEOLIS-CRMF-MTHLY EPA SAMP D3 **Lab Number:** L1710820

Project Number: KEOLIS-CRMF **Report Date:** 04/14/17

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01-04 Batch: WG993588-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	04/12/17 16:32	04/12/17 21:51	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01-04 Batch: WG993589-1										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	04/12/17 09:53	121,2320B	BR

Lab Control Sample Analysis

Batch Quality Control

Project Name: KEOLIS-CRMF-MTHLY EPA SAMP D3

Project Number: KEOLIS-CRMF

Lab Number: L1710820

Report Date: 04/14/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-04 Batch: WG992227-1								
Specific Conductance	99		-		99-101	-		
General Chemistry - Westborough Lab Associated sample(s): 01-04 Batch: WG993588-2								
Nitrogen, Ammonia	95		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-04 Batch: WG993589-2								
Alkalinity, Total	103		-		90-110	-		10

Matrix Spike Analysis
Batch Quality Control

Project Name: KEOLIS-CRMF-MTHLY EPA SAMP D3
Project Number: KEOLIS-CRMF

Lab Number: L1710820
Report Date: 04/14/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-04 (DOWNSTREAM MH) COMPOSITE	QC Batch ID: WG993588-4	QC Sample: L1710820-01	Client ID: DMH 13.4									
Nitrogen, Ammonia	0.150	4	3.83	92		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-04	QC Batch ID: WG993589-4	QC Sample: L1711020-01	Client ID: MS Sample									
Alkalinity, Total	29.5	100	135	106		-	-		86-116	-		10

Lab Duplicate Analysis
Batch Quality Control

Project Name: KEOLIS-CRMF-MTHLY EPA SAMP D3
Project Number: KEOLIS-CRMF

Lab Number: L1710820
Report Date: 04/14/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-04 QC Batch ID: WG992227-2 QC Sample: L1710820-01 Client ID: DMH 13.4 (DOWNSTREAM MH) COMPOSITE						
Specific Conductance	490	490	umhos/cm	0		20
General Chemistry - Westborough Lab Associated sample(s): 01-04 QC Batch ID: WG993588-3 QC Sample: L1710820-01 Client ID: DMH 13.4 (DOWNSTREAM MH) COMPOSITE						
Nitrogen, Ammonia	0.150	0.147	mg/l	2		20
General Chemistry - Westborough Lab Associated sample(s): 01-04 QC Batch ID: WG993589-3 QC Sample: L1710855-01 Client ID: DUP Sample						
Alkalinity, Total	70.1	70.4	mg CaCO3/L	0		10

Project Name: KEOLIS-CRMF-MTHLY EPA SAMP D3 **Lab Number:** L1710820

Project Number: KEOLIS-CRMF **Report Date:** 04/14/17

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information	Custody Seal
Cooler	
A	Absent
D	Absent
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1710820-01A	Plastic 60ml unpreserved	A	8	5.5	Y	Absent	COND-120(1)
L1710820-01B	Plastic 250ml unpreserved w/No H	A	N/A	5.5	Y	Absent	ALK-T-2320(14)
L1710820-01C	Plastic 250ml HNO3 preserved	A	<2	5.5	Y	Absent	HARDU(180),HOLD-METAL(180)
L1710820-01D	Plastic 500ml H2SO4 preserved	A	<2	5.5	Y	Absent	NH3-4500(28)
L1710820-02A	Plastic 60ml unpreserved	B	8	5.7	Y	Absent	COND-120(1)
L1710820-02B	Plastic 250ml unpreserved w/No H	B	N/A	5.7	Y	Absent	ALK-T-2320(14)
L1710820-02C	Plastic 250ml HNO3 preserved	B	<2	5.7	Y	Absent	HARDU(180),HOLD-METAL(180)
L1710820-02D	Plastic 500ml H2SO4 preserved	B	<2	5.7	Y	Absent	NH3-4500(28)
L1710820-03A	Plastic 60ml unpreserved	C	8	3.3	Y	Absent	COND-120(1)
L1710820-03B	Plastic 250ml unpreserved w/No H	C	N/A	3.3	Y	Absent	ALK-T-2320(14)
L1710820-03C	Plastic 250ml HNO3 preserved	C	<2	3.3	Y	Absent	HARDU(180),HOLD-METAL(180)
L1710820-03D	Plastic 500ml H2SO4 preserved	C	<2	3.3	Y	Absent	NH3-4500(28)
L1710820-04A	Plastic 60ml unpreserved	D	8	3.3	Y	Absent	COND-120(1)
L1710820-04B	Plastic 250ml unpreserved w/No H	D	N/A	3.3	Y	Absent	ALK-T-2320(14)
L1710820-04C	Plastic 250ml HNO3 preserved	D	<2	3.3	Y	Absent	HARDU(180),HOLD-METAL(180)
L1710820-04D	Plastic 500ml H2SO4 preserved	D	<2	3.3	Y	Absent	NH3-4500(28)

*Values in parentheses indicate holding time in days

Project Name:	KEOLIS-CRMF-MTHLY EPA SAMP D3	**Lab Number:**	L1710820
Project Number:	KEOLIS-CRMF	**Report Date:**	04/14/17

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A	- Spectra identified as "Aldol Condensation Product".
B	- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the

Report Format: Data Usability Report

Project Name:	KEOLIS-CRMF-MTHLY EPA SAMP D3	**Lab Number:**	L1710820
Project Number:	KEOLIS-CRMF	**Report Date:**	04/14/17

Data Qualifiers

reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name:	KEOLIS-CRMF-MTHLY EPA SAMP D3	**Lab Number:**	L1710820
Project Number:	KEOLIS-CRMF	**Report Date:**	04/14/17

REFERENCES

4 Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: NPW and SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
EPA 9012B: NPW: Total Cyanide
EPA 9050A: NPW: Specific Conductance
SM3500: NPW: Ferrous Iron
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.
SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility
SM 2540D: TSS
EPA 3005A NPW
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E.**

Mansfield Facility:

Drinking Water
EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1** Hg.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

EST Associates, Inc.
51 Fremont Street Needham, MA 02494 Tel: 781-455-0003, Fax: 781-455-8336

CHAIN OF CUSTODY RECORD

L1710820

Laboratory: Alpha Analytical - 508-898-9220

Client	CDW Consultants, Inc
Address	40 Speen Street, Suite 301 Framingham, MA 01701
Contact	Marion Rambelle
Phone #	508-875-2657
Project Name	Keolis- Commuter Rail Maintenance Facility
Address	70 R Third Avenue Somerville MA 02143
Contact	William Betters tel: 508-875-2657
Location ID #	Mult Locs Fax: 508-875-6617
Description	Monthly EPA Sampling - DAY 3 of 3 PO#

MATRIX
1. Wastewater
2. Groundwater
3. Drinking Water
4. Soil
5. Surface Water
6. Other _____

EST to Invoice: kshick@cdwconsultants.com
Lab to Invoice: EST
Lab Report to: See Comments
Billing Reference: Q#8750315-17

Field ID / Point of Collection	Collection Date	Collection Time	Matrix	# of bottles: Glass	Cube	Plastic	VOA's	Preservation: HCL	NaOH	HNO3	H2So4	MEOH	Other	None	Analytical Information: WET- Acute & Chronic Toxicity	Hardness (2340B)	Alkalinity (2320B) - NO HEADSPACE	Spec. Cond. (120.1)	Ammonia Nitrogen (4500NH3-BH)	Cd, Pb, Cu, Zn, Ni, Al (200.7) *(SEE COMMENT)	Comments
DMH 13.4 (Downstream MH) Composite	4-6-17 4-7-17	0900 0800	6		X	X	X								X	X	X	X	X	X	TRC = 0 Temp = 7.5 pH = 6.97
DMH 13.4 (Downstream MH) - RECEIVING WATER	4-7-17	0820	6		X	X	X								X	X	X	X	X	X	Temp = 7.3 pH = 7.03
Ambient (Millers River beyond containment booms) Composite	4-6-17 4-7-17	0900 0800	6		X	X	X								X	X	X	X	X	X	TRC = 0 Temp = 8.1 pH = 7.15
Ambient (Millers River beyond containment booms) - RECEIVING WATER	4-7-17	1010	6		X	X	X								X	X	X	X	X	X	Temp = 7.4 pH = 6.81

Turnaround Information
- ☐ Std. 10 Day Turnaround
- ☐ 7 Day *RUSH*
- ☐ 5 Day *RUSH*
- ☐ 3 Day *RUSH*
- ☐ 2 Day *RUSH*
- ☐ 1 Day *RUSH*

Approved By:

QA/QC
SPECIAL QA/QC or DATA Requirements:
*Please use the method with the lowest det limit possible.

Additional Information
***HOLD ANALYSIS PENDING RESULTS from TOXICITY**
EMAIL REPORTS TO: mrambelle@cdwconsultants.com & wbetters@cdwconsultants.com
BOTTLE SET TO Include: Cond- (1) 60ml P w/NP; Metals- (1) 250ml P w/HNO3; NH3- (1) 500ml P w/H2SO4; Alk- (1) 250ml P w/NP

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Date Time:		Date Time:
Relinquished by Sampler: 1	4-7-17 1045	Received By: 1	4-7-17 10:45
Relinquished by Sampler: 2	4-7-17 1120	Received By: 2	4/7/17 1120
Relinquished by Sampler: 3	Date Time:	Received By: 3	Date Time:

Seal # ☐ Preserve where applicable ☐ On Ice ☐ Temp.